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ABSTRACT

A model for testing educational satisfaction was developed, and a satisfaction survey was administered to 424 alumni of several architectural schools in the Midwest. Attention is directed to both a simple overall measure of satisfaction and a complex, additive measure. The first measure assumes that individuals perceive satisfaction and dissatisfaction as two distinct processes that depend on a wide variety of external conditions and internal values. The second measure decomposes the overall perception by using a theory of dissonance that assumes that satisfaction and dissatisfaction are bipolar opposites on the same scale. The study of satisfaction breaks down architectural education into a professional and general component that occurs at the university, and an apprenticeship component that occurs in the offices of practicing architects. The correlation between simple, overall measures of satisfaction with the two university components was high, but their correlations with the apprenticeship component were low. Apparently, factors that affect satisfaction at the university are not operating in the apprenticeship experience. Satisfaction with the apprenticeship components was significantly higher than satisfaction with the university components. Possible reasons for the findings are briefly discussed. (Author/SW)

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Understanding Educational Satisfaction

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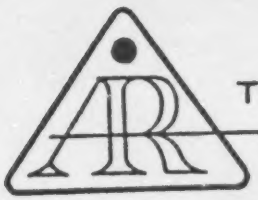

THE ASSOCIATION FOR INSTITUTIONAL RESEARCH

This paper was presented at the Twenty-Third Annual Forum of the Association for Institutional Research held at the Sheraton Centre in Toronto, Ontario, May 23-26, 1983. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum papers.

D. R. Coleman, Chairman
Forum Publication
Advisory Committee

Abstract

The purpose of this study is to understand educational satisfaction by developing a model for testing educational satisfaction and to report preliminary results of a satisfaction survey returned by 424 alumni of several architectural schools in the mid-West. The study attempts to explain two separate phenomena: a simple overall measure of satisfaction and a complex, additive measure. The first measure assumes that individuals perceive satisfaction and dissatisfaction as two distinct processes which depend on a wide variety of external conditions and internal values. The second measure decomposes the overall perception by using a theory of dissonance which assumes that satisfaction and dissatisfaction are bipolar opposites on the same scale. Significant correlations between the two measures are discussed.

Institutional researchers are often asked to evaluate the opinions and attitudes students and alumni hold about their educational experiences in institutions of higher learning. Usually such evaluations occur before accreditation reviews are conducted or during periods of change in leadership or curriculum. Many evaluative instruments attempt to ascertain how satisfied students and alumni are with their education and by doing so to construct an index of academic quality which will be meaningful for academic decision-makers.

The purpose of this study is to understand educational satisfaction by developing a theory of and model for testing educational satisfaction and to report preliminary results of a satisfaction survey returned by 424 alumni of several architectural schools in the mid-West. An ERIC search of titles on this subject revealed that educators have generally not examined educational satisfaction. This study seeks to fill some of the gap in educational research.

Most of the literature concerning satisfaction comes from job satisfaction research. The nature of that research is controversial and has not resulted in a generally accepted definition of satisfaction. Herzberg's (1959,1966) two-factor theory is the most frequently cited point of departure among recent studies. He theorized that satisfaction and dissatisfaction are two distinct concepts rather than opposite poles on a single continuum. Motivators or the intrinsic qualities of a job are the sources of satisfaction while hygienes or extrinsic qualities of a job are the sources of dissatisfaction. The intensity of satisfaction or dissatisfaction depends on the importance an individual places on any job quality in question. Friedlander (1965) verified Herzberg's two-factor theory and replicated the V-shaped function

between measures of satisfaction and importance. However, a number of researchers were unable to verify Herzberg's theory of satisfaction and generally deny its validity (Dachler and Hulin, 1969; Waters and Waters, 1972; Rao and Rao, 1973). These researchers criticize Herzberg's use of a Likert scale to measure satisfaction and importance. Since the relationship between satisfaction and importance could not be ascertained using other than Likert scales, the V-shaped function was considered artifactual and not representative of any underlying psychological phenomenon (Dachler et al 1969).

A second theory of satisfaction stems from dissonance research (Adams, 1965). Stated simply, individuals strive to maximize their outcomes, and they feel most satisfied when they perceive that they are receiving a fair return on their social investments. Dissonance is the degree to which expectations fail to mirror the reality of experiences. The measures of both expectations and experiences are assumed to exist on a common, bipolar axis, and unlike Herzberg's theory the importance of intrinsic or extrinsic factors is minimal. A number of other studies report significant correlations between expectations and satisfaction (Gilham, 1975; Campbell, Converse, and Rodgers, 1976). Mayo (1982) has related the concept of dissonance and incongruence to a hierarchial set of human needs in the job dissatisfaction of urban planners.

Nine operational definitions of job satisfaction were studied by Wanous and Lawler (1972). All of these definitions assume that job satisfaction is an additive measure of satisfaction with various facets of a job. In their study of telephone employees a summation of facet satisfaction weighted by the importance those employees placed on the facets yielded the highest correlation with overall job satisfaction. Dissonances between expectations

and reality, whether weighted or not by importance, yielded the lowest correlations with overall job satisfaction.

Models for analyzing job satisfaction have generally been additive in nature. Aldag and Brief (1978) compared the validity of using linear, conjunctive and disjunctive models. The linear model which assumes an additive function of weighted independent variables was considered advantageous because of its mathematical simplicity. Neither the conjunctive or disjunctive models were superior to the linear model.

A very good general review of the complex nature of satisfaction and the problems involved in measuring it can be found in the Quality of American Life: Perceptions, Evaluations, and Satisfactions (Campbell, et al, 1976).

The concept of satisfaction used in this study attempts to explain two separate phenomena: a simple overall measure of satisfaction and a complex, additive measure. The first is a measure of overall satisfaction that an individual perceives to exist in terms of how an education fulfills the needs of his or her professional role. In this instance, when asked to make a judgment concerning their satisfaction with an educational experience, individuals can choose between two distinct processes that are influenced by a wide variety of external conditions and internal values. An analogy might be made to the proposition that the differences between satisfaction and dissatisfaction are controlled by independent social and psychological factors and that a clear choice exists for the individual in relation to any given situation. The most important factor in this measure of educational satisfaction is the overall perception by the individual that one or another of these conditions is most influential when evaluating the education that he or she experienced.

The second measure is an attempt to decompose the overall perception of

satisfaction or dissatisfaction. Here the theory of dissonance is the central focus in explaining how the individual perceives various aspects of his educational experience in relation to the fulfillment of professional expectations. Both expectations and experiences are measured on a scale with a bipolar axis, and satisfaction is considered an additive index of aspect dissonances weighted by the importance an individual attributes to these aspects.

The thesis of this study is that educational satisfaction can be measured through both of these processes and that a correlation between them will exist. The obvious question that emerges from this supposition is the degree of correlation that is assumed to exist and how related these measures are to certain social and psychological factors which have been shown to be significant predictors of various aspects of satisfaction. Since measures of satisfaction in isolation of larger human issues have little meaning (Campbell, et al, 1976), both measures derived from this study will be interpreted in the context of the individual's personal makeup as well as in relation to the larger setting of professional life itself.

Construction of the Evaluative Model

The evaluative model is based on the educational experience architectural students have during eight years of training. This training includes a university educational experience, usually five years in length, and an apprenticeship experience, usually three years in length under the tutelage of a registered architect in practice. The education of architects has three main components and each of the components has a number of aspects. The three components are defined as: 1) Professional Education; 2) General Education; and 3) Apprenticeship Education. The professional aspects were defined by analyzing the curricula of a number of architectural schools.

The general aspects were constructed from information found in The Great Core Curriculum Debate (1979). Apprenticeship aspects were taken from guidelines for an architectural internship developed by the National Council of Architectural Registration Boards (1979).

The three components and their aspects were used as a way of ordering the format of questions to be asked of architects. Within each of these categories three types of questions were designed to collect data for the two measures of satisfaction. An overall measure of satisfaction was collected on each of the components. In order to determine the overall measure of satisfaction of each component a single question is posed to the individual and a decision must be made, in the most general sense, about perceptions of architectural education. These component measures are labeled in the model as the Simple Indices of Educational Satisfaction. In addition, detailed questions on each of the aspects were asked in an attempt to 1) determine the amount of discrepancy which exists between expectations and experiences and 2) quantify the importance of each aspect within the various components. The difference between expectation and experience of each aspect weighted by the importance of that aspect represents a single element of overall educational satisfaction. These elements added together represent the second overall measure of educational satisfaction. These additive measures are labeled in the model as Complex Indices of Educational Satisfaction.

The model for evaluating educational satisfaction using both simple and complex indices is outlined in Figure 1.

Insert Figure 1 About Here

Although in its most elementary form the model implies that the complex indices of satisfaction can be constructed directly from the weighted dissonances between expectations and experiences, a more analytic approach is envisaged. The literature dealing with the quality of work suggests that such measures of satisfaction are highly dependent on the immediate social and organizational context that surrounds the work setting (Campbell, et.al., 1976). The raw measures of educational satisfaction are assumed to be affected by the individual's personal and organizational characteristics. These characteristics help to form an interwoven satisfaction index of discrete educational aspects as well as to explain the meaning of the overall satisfaction measure. Finally, the model shows that external standards of comparison such as national or regional norms of practice, levels of individual aspirations, and professional status will be useful in assessing the validity of both indices and providing a basis for understanding the perceptions of educational effectiveness.

Method

Survey

The development of a ten-page survey instrument to test the theory in this study was undertaken by a state chapter of the American Institute of Architects. The specific purposes of the survey was to collect perceptions of the chapter's membership on both the overall measure of educational satisfaction and the individual indicators of satisfaction within each of the three main components. A committee was appointed to develop the survey and was composed of the research team, representatives of the two schools of architecture in the state, practicing professionals, and members of the chapter's executive board. During a ten-month period the committee exchanged views and established priorities to determine the form such a survey should take and

the questions it should pose. The development of the survey can be viewed from a number of important perspectives.

Methodological. A primary concern of the research team was the inclusion of a metric with which satisfaction could be analyzed and understood. A good deal of time was spent on the development of measurement scales which focused on the degree of competency architects perceived they derived from their educational experiences. A four-point Likert scale was developed to measure expectations for competency as well as competency actually achieved. The points on the scale were called: no knowledge, introductory knowledge, knowledge to practice, and mastery. A four-point scale was also developed to measure levels of importance which architects assign to each educational aspect. The points on this importance scale were called: unimportant, useful but not important, important but not critical, and critical. Finally, a scale to measure overall satisfaction with the three main components was agreed upon, and the points on this scale were called: very satisfied, satisfied, not satisfied, and very dissatisfied.

Semantic. In pretests of the survey instrument the research team found a wide range of definitions for each of the various educational aspects. The resolution of these definitions was critical in order to eliminate as much ambiguity in the survey as possible as well as to refine the relationships between the elements of the theoretical model.

Political. It was evident that the structure of the survey required a high degree of consensus among individuals who represented competing interests. Personal and organizational characteristics such as which university the architect attended, age, size of firm, and income would be significant filters through which evaluations would pass. Comparative assessments would be inevitable. These filters were the subject of intensive negotiations among the

various committee members.

Pragmatic. The decision to survey attitudes among practicing professionals determined, to a large extent, the size and content of the survey. Pretests suggested that a self-administered format should take the respondent no longer than twenty minutes to complete and that open-ended questions should be kept at a minimum.

Subjects

Surveys were mailed to members of four chapters of the American Institute of Architects in Kansas, Nebraska, Iowa, and Missouri. The total membership of these chapters was 1340, and 424 or 32% of the surveys were returned. Members who did not return the survey were contacted by letter, phone, or notice in the chapters' monthly newsletters.

An overwhelming majority of the returns were from white males whose average age was 43. Over 90% were married. Most possessed professional degrees in architecture, and 86% were licensed architects. More than 50% were registered with the National Council of Architectural Registration Boards.

These architects worked mostly in private firms of ten employees or less although the average size of the firm was thirty-six. Their adjusted income was $34,700.

Procedure

An SPSS frequency analysis was used to develop preliminary data from the survey for this study. This procedure provided basic frequencies, means, standard deviations, cell percentages, and modes. T-tests from SPSS provided information about significant mean differences, degrees of freedom, and probabilities. Pearson Product-Moment correlations were also generated from an SPSS procedure.

Hypotheses

1. Mean scores on overall measures of component satisfaction are not significantly correlated.
2. Mean scores on overall measures of component satisfaction are not significantly different.
3. Mean scores on overall measures of component satisfaction are not significantly correlated with age or income.
4. Mean scores between aspect expectation and experience are not significantly different.
5. Mean scores on overall measures of component satisfaction are not significantly correlated with the weighted dissonances of their various aspects.

Results

1. The hypothesis that the overall means of component satisfaction are not significantly correlated is rejected. The overall measure of satisfaction with the professional component is significantly correlated with satisfaction on the general component ($r = .40$ $p < 0.000$) and the apprenticeship component ($r = .17$ $p < 0.001$). Satisfaction with the general component is also correlated significantly with satisfaction on the apprenticeship component ($r = .13$ $p < 0.012$.
2. The hypothesis that mean scores on overall measures of component satisfaction are not significantly different is rejected. They are all significantly different: Professional Component and General Component (T-value = 6.42, DF = 394, 2-Tail Probability = 0.000); Professional Component and Apprenticeship Component (T-value = 6.08, DF = 300, 2-Tail Probability = 0.000); General Component and Apprenticeship Component (T-value = 2.21, DF = 299, 2-Tail Probability =

0.028). Satisfaction with the apprenticeship component was the highest with a mean of 1.94. Satisfaction with the general component had a mean value of 2.07. Satisfaction with the professional component had a mean value of 2.31.

3. The hypothesis that mean scores on overall measures of component satisfaction are not significantly correlated with age or income is partially rejected. Professional component satisfaction is significantly correlated with age ($r = .15$ $p < 0.001$).
4. The hypothesis that mean scores between aspect expectation and experience are not significantly different is rejected in all cases except for architectural history (T-value = 0.44, DF = 401, 2-Tail Probability = 0.659).
5. The hypothesis that mean scores on overall measures of component satisfaction are not significantly correlated with the weighted dissonances of their various aspects is rejected. Tables 1, 2, and 3 show that almost all aspect weighted dissonances are significantly correlated with overall satisfaction on their respective components.

Insert Tables 1, 2, and 3 About Here

Discussion

Educational satisfaction is difficult to understand because of its subjectivity and its relationship to a broad range of other human experiences and perceptions. However, educational satisfaction is more easily understood if a theory of satisfaction is used which breaks down the educational experience into its component and aspect parts. Simple, overall measures of satisfaction with the components can then be related to complex, weighted

measures of satisfaction with the aspects of those components. Both simple measures and complex measures can be reviewed in terms of how psychological and social factors affect them. This kind of analysis may lead to a better understanding of what educational satisfaction means and what more precisely contributes to it.

This study of satisfaction breaks down architectural education into a professional and general component which occurs at the university, and an apprenticeship component which occurs in the offices of practicing architects. The university experience is essentially different from the apprenticeship. The correlation between simple overall measures of satisfaction with the two university components is high ($r = .40$) but their correlations with the apprenticeship are low ($r = .17$ and $r = .13$). Apparently, factors which affect satisfaction at the university are not operating in the apprenticeship. Satisfaction with the apprenticeship is significantly different and higher than satisfaction with the university components.

While differences in place and type of education may partially explain this dichotomy between the university and apprenticeship components, complex differences in expectations for and experience of competency in the component aspects yields additional understanding. Architects had highest expectations for competency in the apprenticeship aspects but they also felt they achieved the highest competencies from their apprenticeship experiences. Since there was less dissonance between expectations and experience in the apprenticeship aspects than in the university aspects, there appears to be greater satisfaction with the apprenticeship. Architects were the least satisfied with the professional component of their university education. However, an analysis of variance between age and satisfaction with the professional component shows that age has a significant effect on satisfaction with that component.

As architects get older, they become more satisfied with the professional component of their university education. Satisfaction was not related to income alone although income may play a role in conjunction with other psychological and social factors not yet analyzed.

There was significant dissonance between expectations for and experience of competency in all aspects of the three components except for architectural history. Expectations were always higher than experiences but some dissonances between expectation and experience were much greater than others. On the average the greatest dissonances occurred among the professional aspects which also received the lowest overall satisfaction score.

The theory that aspect dissonance weighted by the importance of the aspects is a measure of satisfaction appears to have some validity at this stage of the research. Most of the weighted aspect dissonances were significantly correlated with their respective simple, overall measures of component satisfaction.

Further analyses will reveal whether or not the sums of the weighted aspect dissonances are predictive of simple, overall measures of satisfaction and how various personal and organizational characteristics affect those predictions. Special attention will be paid to the effects of expectation.

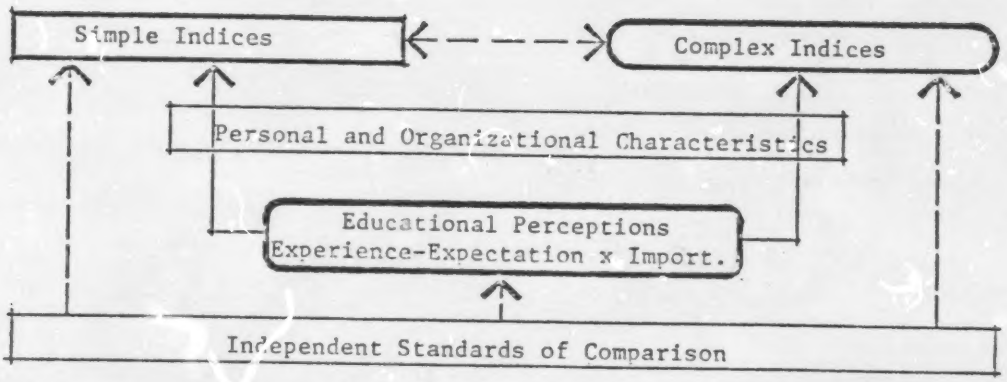

Figure 1. Model for Evaluating Educational Satisfaction

Table 1

Correlations Between Satisfaction on the Professional Component and the Weighted Dissonances of Its Aspects

Aspect	r	Significance	n
Architectural Design	-0.2061	$p < 0.000$	396
Graphic Communication	-0.2052	$p < 0.000$	394
Site Planning	-0.1677	$p < 0.000$	394
Architecture Theory	-0.2184	$p < 0.000$	388
Design Methods	-0.1983	$p < 0.000$	393
Architecture History	-0.1542	$p < 0.001$	394
Programming	-0.0742	$p < 0.077$	392
Professional Practice	-0.1905	$p < 0.000$	397
Construction Documents	-0.1561	$p < 0.001$	395
Business Management	-0.1177	$p < 0.009$	397
Building Construction	-0.1220	$p < 0.008$	396
Structures	-0.0810	$p < 0.054$	395
Electrical/Mechanical	-0.1056	$p < 0.018$	394

Table 2

Correlations Between Satisfaction on the General Component and the Weighted Dissonances of Its Aspects

Aspect	r	Significance	n
Understanding History	-0.1049	$p < 0.019$	389
Self-Understanding	-0.1511	$p < 0.002$	375
Writing Skills	-0.2106	$p < 0.000$	390
Verbal Skills	-0.1652	$p < 0.001$	389
Math Skills	-0.0592	$p < 0.120$	392
Science	-0.0728	$p < 0.076$	389
Fine Arts	-0.1888	$p < 0.000$	391
Other Cultures	-0.1883	$p < 0.000$	390
Moral/Ethical	-0.1840	$p < 0.000$	390

Table 3

Correlation Between Satisfaction on the Apprenticeship Component and the Weighted Dissonances of Its Aspects

Aspect	r	Significance	n
Program and Client Contact	-0.2897	$p < 0.000$	304
Site and Environmental Analysis	-0.1678	$p < 0.002$	301
Schematic Design	-0.1903	$p < 0.000$	304
Building Cost Analysis	-0.2209	$p < 0.000$	304
Code Research	-0.2666	$p < 0.000$	304
Design Development	-0.2231	$p < 0.000$	303
Construction Documents	-0.1434	$p < 0.006$	303
Specs and Materials	-0.2315	$p < 0.000$	304
Document Checking	-0.2025	$p < 0.000$	303
Bidding Procedures	-0.2688	$p < 0.000$	303
Shop Drawings	-0.2594	$p < 0.000$	304
Construction Observation	-0.2211	$p < 0.000$	303
Office Procedures	-0.2138	$p < 0.000$	303
Professional Activities	-0.1125	$p < 0.026$	299

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